

## **TRAILER HITCH SECURITY DEVICE**

### **RELATED APPLICATIONS**

5           This application is related to and derives priority from U.S. Provisional application 60/445,412, filed February 7, 2003, and which is incorporated herein by reference.

### **FIELD OF THE INVENTION**

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The present invention relates to add-on equipment for motor vehicles; more particularly, a security device or lock for trailer hitches is disclosed.

### **BACKGROUND**

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It is estimated that over ten million vehicles in the United States are equipped with trailer hitches- almost all trucks, recreational vehicles and pickups are so equipped. Also many cars are furnished with trailer hitches to pull travel trailers and small utility trailers. When considering the world, an estimate of over fifty million vehicles having trailer hitches would seem reasonable.

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Trailer hitches have been designed to permit trailers to be quickly and conveniently attached and detached. But by designing trailer hitches to be easily used, trailers and attached wheeled carriers can be easily detached and stolen easily by removing the ball and locking nut of the hitch.

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Therefore, it is clear that a simple, yet effective means for securing trailers to trailer hitches is of significant utility and value to owners of trailers and hitches.

### **SUMMARY**

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In response to the value and utility of a means for securing trailer hitches, herein is disclosed a device for securely enclosing and protecting a trailer hitch.

The device is disclosed in an exemplary embodiment comprising: (1) a protective cup that attaches to, is held by, and encloses the locking nut of the trailer hitch, the cup attached by (2) a hinge to (3) a top member, the top member held by the hitch ball, bolt and locking nut, the hinge enclosed by the cup and top member, and; (4) a locking means  
5 for securing the cup so that the locking nut cannot be loosened or removed.

The device illustrated by the exemplary embodiment will be seen to have a number of advantages and benefits.

A first objective and benefit is that the device does not require modifications to the trailer hitch for installation.

10 A second advantage and benefit is the device is simple to manufacture, and therefore, can be sold at a relatively low cost.

And another advantage is, by its simplicity, the device can be made to be extremely resilient and resistant to tampering and attack.

And yet another advantage and benefit is the device is simple to use.

15 These benefits and advantages, plus others, will be apparent from the drawings and descriptions that follow.

### **BRIEF DESCRIPTION OF DRAWINGS**

20 FIG. 1 shows a cross section of the device locked in place securing the locking nut of a trailer hitch, thereby preventing access to the locking nut to prevent unwanted removal thereof.

FIG. 2 is a cross section of the device, the device unlocked to permit access to the locking nut of a trailer hitch ball.

25 FIG. 3 is a cross section of the device showing the means by which the device is attached to a trailer hitch ball, and the means by which the device is locked and secured.

FIG. 4 is a front view showing the device in locked position, whereby the locking nut of the hitch is enclosed and secured.

FIG. 5 shows a possible configuration of the device when viewed from the top.  
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**DETAILED DESCRIPTION****An exemplary embodiment**

The invention comprises the hitch device as shown in FIG. 1, wherein FIG. 1  
5 illustrates the hitch device 1000 used with a standard trailer hitch 1900 having a hitch ball  
1800, with hitch bolt 1700, which is held to the trailer hitch 1900 by a locking nut 1600.  
The invention comprising the hitch device 1000 has: (1) a lower cup or cap 1100; (2) a  
top member 1200, which is attached to the cup by an internal hinge 1300, the top member  
having a hole 1220, through which the hitch bolt is received, the top member 1200 held  
10 to the trailer hitch 1900 by the hitch bolt 1700 and hitch nut 1600. The cup 1100 is  
furnished with a protruding lip 1150, the lip 1150 having a hole 1170. The top member  
1200 also has a lip 1250, which has a hole 1270 in alignment with the hole 1150, when  
the cup 1100 is closed against the top member 1200. When so closed, a lock 1500 may  
be passed through the holes 1170 and 1270 whereby the cup and the top member are  
15 secured together. It will be appreciated that the hitch bolt 1700 and the hitch nut 1600 are  
completely enclosed by the hitch device 1000.

The hitch device 1000 is made from heavy metal, such as steel, which makes it  
very difficult to cut or saw. When the hitch device 1000 is locked in place, it will be seen  
that it will be extremely difficult, if not impossible to remove the hitch ball, therefore a  
20 trailer that is held by the hitch ball cannot be easily removed or stolen by removing the  
hitch ball.

With reference to FIG. 2, the hitch device 2000 is shown in the open or unsecured  
state, wherein the cup 2100 is open. Each of the holes 2270 2170, made to receive a lock  
are shown.

25 With reference to FIG. 3, the hitch device 3000 is shown in cross section with  
internal hinge 3300 constraining the bottom member 3100, having the form of a cup to  
enclose a trailer hitch locking nut, the bottom member 3100 rotating open and shut with  
respect to the top member 3200. The hole 3270 in the top member 3200 is shown, the  
hole 3270 accepting a trailer hitch bolt, which in turn holds the hitch device immovably  
30 in place with respect to the trailer hitch. When the top member 3200 and the bottom  
member 3100 are closed together, the hole 3270 in the top member 3200 and the hole

3170 in the bottom member 3100 are in alignment to accept a lock to hold the top member 3200 and the bottom member 3100 together.

Referring to FIG. 4, the device 4000 completely encloses the hitch bolt and nut, when the bottom member 4100 in the form of a cup is closed and locked.

5           With reference to FIG. 5, the device 5000 is shown with one possible form factor, wherein a top view shows the internal hinge 5300 holding the top member and the cup. The hole in the top member 5220 is shown, whereby the hole 5220 receives the hitch bolt and is held by the hitch nut. Further the top member lip is shown and the hole therein 5270, whereby the hole 5270 receives a lock.

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### **DISCLOSURE SUMMARY**

15           While only one embodiment of the present invention has been shown and described, it will be understood that various modifications and changes could be made without departing from the spirit and scope of the invention. For example, different shapes and form factors are possible, or different means can be conceived for locking the top member and the cup together. Therefore, the true scope of the invention will be described by the claims that follow.

**ABSTRACT**

A device comprising means for securing trailer hitches is disclosed. The device is disclosed in an exemplary embodiment comprising: (1) a protective cup that attaches to a  
5 (2) top member, by (3) an internal hinge, so that when the cup and the top member are closed, and locked by (4) a locking means, the device encloses the locking nut of the trailer hitch so that the locking nut cannot be loosened or removed.

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